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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,764	07/27/2001	Karl-Anton Starz	33766W036	7470

7590 06/14/2005
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EXAMINER

WILLS, MONIQUE M

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/915,764

Applicant(s)

STARTZ ET AL.

Examiner

Monique M. Wills

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

This Office Action is responsive to the Amendment filed March 21, 2005.

The following rejection is overcome:

- Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer DE 196 11 510 in view of Goller et al., U.S. Patent 4,185,131 and further in view of Binder et al., U.S. Pub. 2002/0037449.

The instant claims are rejected as follows:

- Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer DE 196 11 510 in view of Goller et al., U.S. Patent 4,185,131.
- Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer DE 196 11 510 in view of Goller et al., U.S. Patent 4,185,131 and further in view of Ramunni et al. U.S. Patent 6,022,634.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer DE 196 11 510 in view of Goller et al., U.S. Patent 4,185,131.

With respect to claim 1, Fischer teaches an ink for producing a membrane electrode assembly for a fuel cell comprising 3.1wt% Pt/C catalyst, 30.9wt% of a 5% strength ionomer solution in 90 parts isopropanol and 10 parts water, 37.2 wt% glycerine, 24.8wt % water, 2.5 wt% tetrabutylammonium hydroxide and 1.5 wt% of a pore former. The water content of the ink is 27.7 wt% in total. See Applicant's instant disclosure bridging pages 2 & 3. In re claims 6-7, the polymer electrolyte membrane is coated with the ink in accordance with the screen printing process on page 3 of the instant disclosure.

Fischer is silent to: containing a linear dialcohol with a flash point higher than 100°C and being present in the ink in a concentration between 1 and 50 wt%, with respect to the weight of water (claims 1 & 2); the linear alcohol being a dihydric alcohol wherein hydroxyl groups are not adjacent to each other (claim 3); an alcohol chain structure that is aliphatic-CH₂ groups, optionally with oxygen atoms between said CH₂ groups (claim 4); or a dialcohol selected from the group consisting of ethylene glycol, diethylene glycol, propylene glycol, dipropylene glycol or butanediol (claim 5).

However, Goller teaches the functional equivalence of glycerin and ethylene glycol as organic solvent inking vehicles for fuel cell constituents (col. 5, lines 5-20).

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Therefore, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though Fischer does not teach ethylene glycol, Goller teaches that ethylene glycol and glycerine are art recognized equivalent materials for use as organic solvent inking vehicles, and therefore one having ordinary skill in the art would have substituted one organic solvent for the other.

In re claim 1, it is reasonable to expect that the ethylene glycol of Goller is a linear dialcohol with a flash point higher than 100°C, because Fischer in view of Goller employ the same organic solvent as the instant claims. Additionally, “products of identical chemical composition can not have mutually exclusive properties.” A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ 2d 1655, 1658.

As to the limitation in claims 1 & 2, with regard to the organic solvent being present between 1 and 50-wt% by weight of water, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ said water concentration, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CPA 1980). The skilled artisan recognizes that the amount of water directly effects the dispersion ability of the ionomer in the ink.

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In re claims 3 & 4, according to the instant disclosure bridging pages 4 & 5, ethylene glycol is a dihydric alcohol with hydroxyl groups not adjacent to each other with a chain structure that is aliphate-CH₂ groups. Additionally, "products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ 2d 1655, 1658.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer DE 196 11 510 in view of Goller et al., U.S. Patent 4,185,131 and further in view of Ramunni et al. U.S. Patent 6,022,634.

Fischer in view of Goller teaches an ink coated on a membrane electrode assembly as described hereinabove.

Fischer is silent to a gas distributor substrate coated with the ink.

Ramunni teaches that it is conventional to coat ink catalyst on gas distributor layers in order to form membrane electrode units. Specifically the ink electrodes are coated of the gasket. The gaskets are provided with channels for feeding the gaseous reactants and discharging the excess reactants and condensates, thereby functioning as gas distributors. See Example 1.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to coat the catalyst ink of Fischer on a gas distributor layer, because Ramunni teaches that it is well known to employ ink catalyst coating on gas distributor layers in fuel cells.

Response to Arguments

Applicant's arguments, see pages 1-2, filed March 21, 2005, with respect to the rejection claims 1-7 is not persuasive. Specifically, applicant argues that Goller and Fischer are not combinable references, because the ink set forth in Goller does not contain electrocatalyst material. Therefore, because Goller teaches a different system, the reference does not teach the equivalency of glycerin and ethylene glycol. This argument is not persuasive. Both Goller and Fischer teach the electrocatalyst platinum. See Goller at column 5, lines 55-65. Therefore, the equivalency teaching of glycerine and ethylene glycol is

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correct because the ink set forth in Goller contains the same electrocatalyst material as Fischer.

Applicant's arguments, see pages 1-3, filed August 5, 2004, with respect to the rejection of claim 8 under 35 U.S.C. § 103(a) as unpatentable over Fischer DE 196 11 510 in view of Goller et al., U.S. Patent 4,185,131 and further in view of Binder et al., U.S. Pub. 2002/0037449 have been fully considered and are persuasive. The instant rejection has been withdrawn.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Michael Barr, may be reached at 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information

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for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MW

6/12/05


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